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THE SCIENCE NEWS-LETTER

A Weekly Summary of Current Science

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SUN ECLIPSE OBSERVATIONS PLANNED FROM NAVY DIRIGIBLE

When the moon eclipses the sun and throws a great shadow upon part of northeastern United States next January 24, the Navy's great dirigible, the Los Angeles, will be used to secure scientific data on this important event.

Carrying a staff of astronomers and their scientific instruments high above any clouds that may be in the sky and far out to sea so as to lengthen the time of totality, the helium filled craft is expected to serve science effectively in recording this important event.

The Bureau of Naval Aeronautics, of which Admiral W. A. Moffett is chief, and the U. S. Naval Observatory, of which Capt. Edwin T. Pollock is superintendent, are making plans for the use of the airship at the time of the eclipse. In a communication addressed to prominent astronomers throughout the country who are planning to observe the coming eclipse from the ground, Capt. Pollock has asked their advice on the kind of observations that can best be made from the air.

"Observations from the air have the advantages over those from the ground of less interference from clouds, and of avoidance of the strong absorption of the lower strata of the air," he states. "The latter advantage would be particularly favorable at an eclipse like the one of 1925 when the sun will be at a very low altitude. By going out over the ocean, the additional advantages of longer duration and of greater altitude of the sun could be secured. An airship offers several advantages over an airplane, as for example, a larger and steadier platform for instruments, and accommodation for professional astronomers."

Although observations requiring precise adjustment of instruments and long photograph exposures will not be possible from the airship, the program already planned includes determination of exact times of contact of moon and sun, photographs by a half dozen cameras, motion pictures of corona and disappearing and reappearing crescent, observations of the shadow bands, determination of the color and visibility of the corona, color effects and changes in the atmosphere, visibility of the stars and searches for comets and planets. Colored motion pictures of the highly colored streamers shooting out from the sun during totality will be attempted for the first time in history. It is hoped that these observations will be of value to the study of sunspots and the resulting magnetic disturbances on the earth which affect telegraph and cable communication and probably have some affect on radio communication. The airship will be kept in touch with ground observers by radio and U.S. Naval Observatory time signals will be received in the same way.

Prof. S. A. Mitchell, of the University of Virginia, and chairman of the eclipse committee of the American Astronomical Society and observer at five previous eclipses, has approved of the plan of using the dirigibles as observatories. Prof. Ernest W. Brown of Yale University, authority on the moon which will cause the eclips

points out that aerial photographs of the edge of the shadow cast by the moon will help materially in determining whether the moon arrives at the times predicted by the astronomers.

The possibility of eclipse observations from the air was pointed out before the California eclipse of last year by Col. John Millis, U.S.A., retired, and airplanes of the Navy and the Army were in the air during that event. Clouds and the speedy movement of the airplanes prevented results of scientific value being secured then but use of lighter-than-air craft is expected to bring better results.

The fact that this event will occur in the morning at about 9 o'clock and the desirability of reaching as high an altitude as possible has also resulted in a decision to reduce the crew of the airship to a minimum and limit the number of astronomers to be carried aloft.

The buoyancy of the dirigible will be decreased by the low temperature of early morning and the lack of sunshine. The great cigar-shaped ship will steal out of its giant hanger at Lakehurst before daylight on the morning of the eclipse in order that it may climb high above any clouds that might obscure the eclipse and station itself some distance out to sea where the time of total eclipse is longer. It is probable that only six or seven scientific observers, under Capt. Pollock's direction, will be accommodated.

"ROTOR" SHIP OPERATES ON BASEBALL PRINCIPLE

A 70-year old scientific principle, easily understood by anyone who knows anything about baseball, is the trick that underlies the new "Rotor" ship invented by Anton Flettner, according to German engineers and scientists who have examined the sensation-causing craft. The smooth surfaces of the great cylindrical "rotors", spinning in the wind, increase pressure on one side and decrease it on the other, just as the surface of the rapidly rotating baseball piles up a difference of pressure on its two sides and causes it to drift into a curve.

That, say the scientists, is all there is to it. The persistant stories of a "windmill ship", whose towers are somehow turned by the air currents, or which contain inside their smooth walls paddlewheels that are so turned, and which drive underwater propellers, are all imaginative and incorrect attempts to explain a very simple thing that looks mysterious just because it is unfamiliar in its present application.

The two tall, cylindrical objects that look like immense smokestacks, are the only propellers the ship needs. They are spun on their axes by small electric motors-- 20 horse power is all the present ship employs. As they spin, they tend to carry a layer of air around with them. In calm weather, this air would simply keep rotating about with the rotors, and nothing would happen. But when a wind is blowing, which would split and flow equally on both sides of the rotors if they were stationary, more of the air is turned with the direction of rotation than against it. That is, the wind is split unequally. The part that travels along with the surface of the rotor blows faster, momentarily, than the part that travels against the direction of motion of the other side. The wind that has its motion slowed down naturally tends to pile up pressure at the point where the slowing occurs, while the wind that is helped to flow faster tends to lower pressure at the point where the "boost" is given. When the wind is blowing across the ship, the rotors are revolved in such a direction that the pressure will be built up behind them and lowered in front, so that the craft moves forward.

This effect is known variously as the "Magnus" and the "Bernouli" principle, from the scientists who first made critical examinations of the phenomenon, in the middle of the nineteenth century. It has been noted in the drift downthe wind of rapidly rotatingrifle bullets and artillery projectiles, and all army range tables allow for it. But Herr Flettner is the first, so far as known, to attempt a commercial application.

One incidental advantage is claimed for the rotor ship that sets it ahead of either steam of sailing vessels. It can be turned on its own center by rotating the towers in opposite directions. It is claimed also that the sip can be stopped very quickly by reversing the direction of rotation of the towers. This is somewhat analogous to the stopping of a steamer by reversing the screw, and is a feature absent from sailing ships. There has been considerable question as to the stability of a rotor ship in a storm, but the inventor claims that the surface exposed to the tempest by the rotors is not so great as that exposed by the bare rigging of a close-reefed sailing ship.

Since rotor ships must have wind in order to move, they would be competitors only of siling ships. Since the pressure difference must always be built up by a wind blowing across the ship in order to move it forward, the rotor ship is like the sailing vessel in that it cannot sail directly into a head wind, but must tack across it. The sailing vessel has the advantage when the wind is directly astern, for then it can sail directly before it, whereas a stern wind is almost as useless to the rotor as is a head wind.

But Herr Flettner claims that this slight advantage is offset by the greater speed of his vessel, by its greater cheapness of construction, and above all by the very small crew required as compared with the men on a sailing ship. He states that operating costs for a rotor ship should be eighty per cent. lower than those for a sailing ship of the same tonnage.

The ship used in the demonstrations of the new device is the yacht "Buchau", of 600 registered tons, built by the Krupp-Germania shipyard at Hamburg. The rotors are tall cylinders of sheet iron, approximately nine feet in diameter by sixty in height, one located forward and the other aft, and geared to turn on a central shaft by electric motor drive. The trial trip, which Herr Flettner claims was a full success, was made from Hamburg to Eckernfoerde. He states that a speed was attained, with the rotors running on 20 horsepower, equivalent to that of a screw-driven ship of the same size running on 1000 horsepower.

Herr Flettner is an engineer with at least one successful invention to his credit already. During the world war he devised a type of balanced rudder for aircraft, which by employing small auxiliary vanes caused the main rudder surface to turn itself by the force of the air current as it streamed past. This device, which required but little muscular force on the part of the pilot to operate it, has since been widely adopted in airplane construction, and has also been modified for use on ships. It was in an endeavor to adapt the same idea to the handling of sailing vessels that Herr Flettner was led to the application of the Magnus principle and the invention of the "rotor".

The inventor is now raising funds for the construction of a 10,000 ton ship which he states will make the pioneer vayage to America.

Govermemt scientists in the Bureau of Standards, the Weather Bureau, and the Navy Department, have adopted an attitude regarding the Flettner invention, whic though not entirely skeptical is distinctly cautious. The Magnus or Bernouli principle, they say, is commonplace andperfectly well known; but preliminary calculations,

based on formulas known at present, do not seem to indicate the development of very large amounts of power. They are for the most part adopting a "watchfully waiting" attitude.

NEW MECHANICAL LARYNX HELPS DUMB TO SPEAK

Three mutes, deprived of their voices as an unavoidable result of operations for cancer of the throat, spoke distinctly and clearly before an audience of medical men, using an artifical larynx, invented by Dr. John E. Mackenty of New York.

Sufferers from cancer of the throat have heretofore been able to save their lives only at the expense of their voices, for the radical operation necessary in such cases necessitates the destruction of the vocal apparatus, and after recovery the patients must breathe through an opening in the neck. The new device is strapped over this opening, and receives air which it sets into vibrations similar to those caused by the natural vocal cords. This vibrating column of air is carried to the mouth by a small tube, and there modified into human speech by the lips and tongue. The result differs from ordinary speech mainly in that it is a monotone.

The new device, according to Dr. Mackenty, represents practically a philanthropic contribution to mankind. There are so few persons who require it, and the possible sales are so far between, that his efforts to interest manufacturers to develop the idea met with no response. Finally, executives of the laboratories maintained by the American Telephone and Telegraph Company and the Western Electric company decided to undertake the work, even though no certain return of their expense was in sight. Using the knowledge of human speech acquired in their telephonic studies scientists of these laboratories have now produced a device which will enable many unfortunate people to talk again.

Not only will the artificial larynx add to its users' happiness and earning power, but it will remove one barrier to the proper treatment of cancer of the throat. In the early stages of the disease, when a radical operation offers a practical certainty of cure, sufferers have often hesitated because they dreaded the loss of their voices. Delay, even while trying other treatments, has usually allowed the disease to progress to a point where cure is impossible. With the fear of future silence removed, Dr. Mackenty believes that sufferers no longer will risk their lives, but will have the cancerous tissues removed and do their talking with an artificial larynx.

ANARCHY IN THE HUMAN BODY

By Dr. Edwin E. Slosson.

The human system is ordinarily a well ordered empire. The numerous organs and innumerable cells carry out their diverse duties in close cooperation due to subordination to the central powers. If the body is attacked, say, by the cut of a knife or an army of microbes, the blood cells hasten to fill up the breach in the wall or to overpower the invading host. Because of the vigilance and well regulated activity of the cells, the ravages of wounds and disease may be staved off for seventy years or longer. And physicians have found that they can aid the

defensive forces of the body by sterilizing open wounds or injecting antitoxins to destroy the foreign invaders.

But in case of an internal insurrection, the physician is comparatively powerless for he has no medicine that will distinguish between loyal and disloyal cells since they are of the same nature and origin. Such a cellular insurrection is cancer and that is why no cure or preventive has been found for the disease like those for diphtheria and yellow fever. A similar situation prevails in international affairs. The League of Nations can intervene in the case of conflicts between nations but is powerless to prevent internal rebellion.

The cancer cells are carrying on the same commendable activities as the normal cells. They grow and subdivide at an amazing rate, but selfishly and without regard to the commonweal. It is as if New York City should fall into the hands of anarchists who were incompetent to maintain the public services. For a time they would thrive on accumulated wealth and incoming supplies, but transportation would break down, the water supply and sewer system would fail, food would run short, and the population would perish from starvation and pestilence. The anarchistic colony would die at its center while continuing to spread into the surrounding country.

So the multiplying mass of cancerous tissue grows without developing, expands without organization, all cells of the same sort, equal in rank and alike in function; none in authority and none to obey; none to look after the interests of the community as a whole; none set to serve the rest as carriers or scavengers. So the cancerous colony, cut off from communication with general headquarters by lack of nerves, devoid of veins to relieve it of its waste products and of arteries to supply food and oxygen, dies and decays at the center, poisoned by its own pollution, while vigorously extending its conquests into the healthy tissue roundabout.

To "increase and multiply" is the only law recognized by cancer cells. Some break away from the parent community and start new colonies in some remote part of the body. That is why it is so difficult to cut out cancer completely with the knife. A few cells transplanted from one animal to another will flourish in their new environment. They will even grow in glass if kept warm and well fed. They seem to be immortal and capable of infinite expansion so long as living conditions are favorable. In one American laboratory a single cancer strain has been kept in continuous existence by transplanting for thirty years, and it is calculated that if all the branch colonies had been allowed to grow and given a chance to expand as they would, the mass of cancerous tissue would fill the universe, all starting from some one cell that had gone wrong.

Sampson Handley says in the recent report of the Cancer Research Laboratories of the Middlesex Hospital, England:-

> "It has to be remembered that man with his millions of cells has evolved from a single cell. It is hardly a matter of surprise if occasionally one of these millions of trained subordinate cells reverts to the ancestral, independent type, behaves like a unicellular organism, owning no allegiance to the cell community, whose ruin is the final outcome."

What starts the revolt? What is the origin of the impulse to anarchy?

This remains a mystery although the problem has been the object of research in well equipped laboratories by skilled experimenters for many years. No microbe has

so far been found present in all cancers and certain to produce them. Cancer is not, as commonly said, an exclusive disease of civilized man. It occurs among primitive peoples and animals, and has even been found in fishes. Cancer is apt to start at some point of chronic irritation yet not all such irritation causes cancer.

Three ways are known by which cancer is caused and by which it may be produced experimentally. One is by action of the penetrating rays of radium or the X-rays. These may either stimulate or destroy the cancerous tissue according to their intensity and duration. Another cause is a minute parasitic worm, carried by cockroaches, and when rats eat the cockroaches they are likely to get cancer of the stomach. The third cause of cancer is some substance contained in minute amount in the higher boiling fractions or coal-tar and petroleum. Workers about shale oil and tar stills are apt to get large warts on their hands that sometimes become cancerous and chimney sweeps may get cancer from the soot. Coal tar put on the skin of mice will cause cancer but not on rats.

Until the cause of cancer is discovered, a cure can hardly be hoped for. But there are a few well authenticated cases of spontaneous cures, and recent experimentation points the way to a possible conquest of the disease. In the Middlesex Hospital certain hopeless cases have been treated by injecting doses of cancer cells that had been killed by exposure to radium rays, and encouraging results are reported from this treatment.

ULTRA-VIOLET LIGHT FOUND DEADLY TO LOWER ORGANISMS

The invisible ultra-violet light beyond the upper end of the spectrum, which has come into general use in hospitals for the treatment of a number of human ills, kills many of the lower forms of life like a stroke of lightning, according to the results of researches made public by Drs. C. E. Barr and W. T. Bovie of Harvard University.

The efficacy of ultra-violet light has long been known to depend on its destructive effect on protoplasm, which is the living substance that forms the basis of all animals and plants, but the present experiments have shown for the first time with what rapidity this destruction takes place.

Drs. Barr and Bovie used living protoplasm in its simplest available form; the animals used in their experiments were amoebae, which are naked and unprotected bits of protoplasm of microscopic size that crawl about in stagnant water. Exposed to ultra-violet light for one-fourth of a second, an amoba apparently suffered paralysis. It stopped moving and seemed dead, but after a time recovered. But if the exposure lasted three seconds, the animal was killed and its substance broken down at once. One second of exposure killed the animal, but the disintegration of its body was sometimes delayed for a short time. Successive exposures of a fraction of a second each, with intervals of one-half second between flashes, produced a cumulative effect, and the amoeba was killed when the sum of the successive brief exposures was approximately equal to one continued exposure long enough to be fatal.

The tips of trees begin to grow weeks and sometimes months before the trunks begin to expand.

PLAN TO USE AIRPLANES IN PILOTING STEAMERS

Airplanes are destined to find extensive employment in the piloting of ships approaching port, according to Capt. F. B. Bassett, hydrographer of the Navy. "It is a comparatively simple matter," says Capt. Bassett, " for an airplane to leave its station on shore, fly out over the sea, meet the oncoming ship and signal the proper direction to proceed."

A recent experience of the airplane carrier "Langley" is quoted as a case in point.

"The 'Langley' arrived off the entrance to Pensacola Bay at daylight. A light fog existed reducing visibility to four miles or less. The shore could be made out for a limited distance but as it is low and sandy and has in that vicinity veryfew conspicuous marks to aid the navigator, it was impossible to determine whether the ship was to eastward or to westward of the entrance. Soundings indicated almost conclusively that we had been set during the night to the westward.

"There were several planes on the flying-off deck that were to be landed as soon as possible on arrival. Knowing we were very close to our destination a plane was sent off to locate the entrance and indicate its bearing to the ship. In a very few minutes the plane, which was not equaipped with radio, flew back to the vicinity of ship and indicated positively the bearing of the entrance, the ship being to eastward instead of to westward.

"It appears that this illustrates a use of ships' planes that might be of inestimable value in an imergency that required entry into port of a vessel or force with least possible delay."

GERMANS AGAIN CLAIM TO MAKE GOLD FROM MERCURY

The transmutation of mercury into gold, which was recently reported to have been accomplished by Prof. A. Miethe of Berlin University and generally questioned by other chemists, is announced to have been confirmed by his collaborator, Dr. H. Stammreich. He claims to have repeated Miethe's experiment, using mercury which careful analysis had shown to be "absolutely free from any trace of gold" but which at the end of the process was found to contain appreciable amounts of the precious metal.

Approximately one and one-half kilograms of mercury was used in a mercury arc lamp. The lamp was operated for 197 hours with from 160 to 175 volts at 12.6 amperes. The gold produced amounted to eighty-two millionths of one gram, or a little less than three ten-millionths of an ounce.

Obviously no commercial or economic results can be expected from this discovery, say the scientists, for the cost of producing gold by this method is hundreds of thousands of times higher than the value of the gold itself. But as an actual demostration of a chemical feat held theoretically possible ever since the discovery of the electronic composition of the atom, the result is of great scientific importance.

The conversion of mercury into gold reported from Berlin is admitted by American and English scientists to be possible, but the sufficiency of the energy used and the reliability of the tests applied by the Germans for the detection of the gold have been questioned.

Dr. R. A. Millikan, winner of the Nobel prize for physics last year, declared that no experiments on the production of gold from mercury have been made or planned in the Norman Bridge Laboratory, Pasadena, California, of which he is director. He points out that "reliable results are very difficult to obtain because traces of gold are practically always found in mercury anyway".

Prof. W. D. Harkins of the University of Chicago, well known for his work on atomic structure, declares that in the mercury vapor lamp, with which Prof. Miethe claims to have produced gold, the energy brought to bear upon the atoms of mercury is exceedingly small in comparison with the amounts of energy in all actual artificial disintegrations thus far accomplished.

"According to accepted theories it also seems probable," he says, "that such small amounts of energy would not be able to penetrate the outside of the atom to get at the nucleus at all. Prof. Haber found gold in Miethe's mercury and this is undoubtedly accurate but Haber disclaims all knowledge of how the mercury got in. Experts in this field will not trust any reports of atomic disintegration by large or small currents, unless voltages of millions of volts have been used, until they are supported by experimental work carried out with the most extreme precautions in such a way as to give definite evidence that the results claimed have been obtained. It is possible that Miethe has such evidence. I have not repeated his experiments..

"Mercury would be converted into gold if a hydrogen nucleus were lost from or an electron added to mercury's nucleus. I have bombarded argon nuclei by helium nuclei with an energy corresponding to five million volts without their disintegration. The voltage used in a mercury vapor lamp is small."

The products of Prof. Miethe's first experiment were analyzed in the laboratory of Dr. Fritz Haber, famous for his work on nitrogen fixation. Prof. Haber, when in this country recently, informed a Science Service representative that silver as well as gold was found in the samples submitted. This is taken to indicate that both silver and gold were present as original impurities of the mercury, since they are usually associated together in mercury ore.

Dr. Frederick Soddy, the English chemist at Oxford, stated in a British scientific publication that even in advance of the German announcements, it appeared to him that not only was such a transmutation possible but that it was inevitable unless our present views of atomic structure are radically at fault. He believes that the chemical detection of the gold produced, not the transmutation, would probably be the more formidable experimental difficultly.

ORION RETURNS TO EVENING SKY

By Isabel M. Lewis,
U. S. Naval Observatory.

Orion, The Warrior, the most popular and widely known constellation in the heavens, visible from all corners of the world because of its position on the celestial equator, has returned once more to the evening sky and may be seen towering majestically above the eastern horizon by nine o'clock in the evening.

The quaint star maps of the ancient astronomers pictured Orion with uplifted club in his right hand, its tip close to the horns of Taurus the Bull which he faces

and with a lion's skin thrown over his uplifed left arm. Four brilliant stars outline the hero's huge form. Two, ruddy Betelgeuse in the right shoulder, and blue-white Rigel diagonally opposite in the left foot, are of the first magnitude. The remaining two, Bellatrix in the left shoulder, and Saiph in the right knee, are of the second magnitude. The left foot of Orion rests upon Lepus, the Hare, the small constellation directly below Orion, and his head is marked by a group of three faint stars. At his heels follow the two dogs, Canis Major, which contains Sirius, the brightest star in the heavens, and Canis Minor, farther north, with its first magnitude star Procyon. Depended from the Belt of Orion, which is marked by three stars of the second magnitude in a straight line slanting toward the southeast, is the famous Sword of Orion, containing a line of faint stars, the central one rather fuzzy in appearance. Viewed through the telescope this fuzzy, starlike object is transformed into what is generally considered to be the most magnificent object in the heavens, the Great Orion Nebula, a glowing mass of luminous gases of enormous size and extent which includes in its ramifications the entire constellation.

The Orion Nebula is most brilliant in the neighborhood of the multiple star Theta, which is embedded in its heart. This star and its surrouding nebulosity is the fuzzy stellar object that is visible to the naked eye. Small telescopes break this star up into a system of four stars but more powerful telescopes show that it is really a sextuple star, that is, six gigantic suns forming one enormous system.

According to the latest investigations the luminous gaseous nebulae of which the Great Orion Nebula is the most illustrious example owe their luminosity either to the reflected light of stars associated with them or to electrical excitation produced in some way by these stars or to both causes. It is probable, then, that the multiple star Theta in the heart of the Great Orion Nebula is largely responsible for the brilliancy of its surrounding nebulosity.

The most reliable estimates place the typical Orion stars, such as the brilliant Rigel, the three stars in the Belt of Orion, and the stars in the Sword of Orion, at a distance of approximately six hundred and fifty light years from the earth, or nearly four thousand trillion miles. All of these Orion-type stars are intensely hot with temperatures of ten or twelve thousand degrees Centigrade or more and with the element helium conspicuously present in their spectra.

The red variable star Betelgeuse, which has been in the past few years one of the most talked of stars in the heavens because of its huge size, is not a member of the Orion group of stars. Its distance from the earth is less than two hundred light years or about one-third that of the true Orion stars. It is merely seen projected against the background formed by the more distant stars in a convenient position to complete the outlines of this celestial figure which man has fashioned out of the stars and which will some day lose its distinctive form as surely, if not as fleetingly, as the forms we picture in summer clouds.

Betelgeuse owes its great brightness to its enormous size and the extent of its light-giving surface for its temperature is low for a star, as is to be expected from its reddish color, scarcely 3,000 degrees Centigrade. If it were much less the star would scarcely shine by its own light. Unit for unit of area, Betelgeuse is far inferior in light-giving power to the magnificent Rigel which outshines it though a much smaller body and three times more distant. The brilliant diamond-like intensity of its light proclaims Rigel to be an intensely hot sun at the peak of its evolution with tremendous light-giving power.

WASHINGTON TO BE MAGNET FOR SCIENTISTS NEW YEAR'S WEEK

Sixty-four scientific organizations, attracting some 3000 scientists, will meet in Washington during New Year's week, from Dec. 29 to Jan. 3.

Over a thousand scientific papers will be presented on subjects ranging from astronomy to zoology. It will be the largest gathering of its kind ever held, according to officials of the American Association for the Advancement of Science, which forms a nucleus around which the other scientific organizations gather.

Added interest in the meetings has been created by the renewal of a $1000 prize offered by an anonymous member as a reward for the most important scientific paper to be read at the meetings. The prize was awarded last year for the first time to Prof. L. E. Dickson of the University of Chicago.

This meeting, the seventy-ninth of theAssociation, will be the fifth one held in Washington. Earlier Washington meetings were held in April, 1854, August, 1891, December, 1902 and December, 1911. Records of the 1854 meeting state that "the members of the Association were elegantly entertained on different evenings by Franklin Pierce, President of the United States, and Jefferson Davis, Secretary of War." Of the 1004 members of the Association, 168 were in attendance; and 110 papers were read.

The sections of the American Association now number fifteen, ranging from Mathematics in Section A to Educational Science in Section Q. Attendance at the general meetings and the meetings of the various sections, however, is not limited to members of the Association. The meetings are all open to the public, and the American Association is unique among American scientific societies inthat laymen, interested but not technically qualified in science, can become full members.

President Coolidge will probably address one of the general meetings, which the entire association attends. On Monday evening, Dec. 29, Dr. Charles D. Walcott, secretary of the Smithsonian Institution, and retiring president of the American Association, will speak on "Science andService". On Tuesday evening there will be a meeting of the Society of Sigma Xi, the science honor fraternity, which will be addressed by Dr. F. Russell, general director of the International Health Board, on "War on Diseases", with special reference to malaria and yellow fever. On Thursday evening the American scientists will have an opportunity to see how their British co-workers conduct their meetings, for motion pictures will be shown of this summer's meeting of theBritish Association at Toronto, with a talk by Dr. Edwin E. Slosson of Science Service.

TABLOID BOOK REVIEW

MAN BEFORE HISTORY: A Short Account of Prehistoric Times, By Mary E. Boyle. Boston, Little Brown and Company, 1924. 135 Pages. Price $1.50.

Although primarily designed for young readers, this little book should serve grown-ups as an excellent introduction to the Europeancave man. The story of the various finds and the carefully considered conclusions which have been drawn from them are told in a clear and simple fashion and illustrated by copies from the cave man's original paintings.